METALGUARD® A90

Heavy-Duty Extended Life Additive Package with Nitrite and Molybdate

Overview

METALGUARD A90 is an additive package, based on organic acid technology, that is used to make an extended life antifreeze/coolant meeting ASTM D6210. METALGUARD A90 combines two organic acid inhibitors with azoles, nitrite and molybdate. This combination of inhibitors provides superior protection for all engine materials of construction, including steel, aluminum, cast iron, copper, brass and solder. Additionally, the inhibitor package provides outstanding cylinder liner cavitation/pitting protection through its combination of organic acids and nitrite. It is compatible with all commonly used plastics and elastomers found in gaskets, washers, seals, hoses fittings and other non-metallic parts. Regarding coolant compatibility, METALGUARD A90 is compatible with most heavy-duty extended life coolants, including CAT ELC.

This specially formulated inhibitor package contains no phosphates, silicates, borates, or nitrates. Hard water deposits are minimized, and pump seal life is extended as a result of the absence of phosphates and silicates. Gel formation is eliminated by METALGUARD A90's silicate-free formulation.

The combination of aliphatic mono-acids and di-acids used in METALGUARD A90 eliminates the need for traditional supplemental coolant additives (SCAs) in heavy-duty use and provides extended coolant maintenance and change-out intervals. With a proper monitoring program in place, antifreeze/coolant made with A90 has a service life of 600,000 on-road miles, with the addition of an extender at 300,000 miles. For off-road service, including stationary engines for compressors and turbines, A90 antifreeze/coolant has a service life of 12,000 hours or 6 years, whichever comes first.

Features & Benefits

- Phosphate, silicate, borate, and nitrate free. .
- Includes nitrite and molybdate for enhanced liner pitting protection.
- Contains ingredients to protect all engine metals.
- Can be blended with ethylene glycol, propylene glycol or glycerin bases.
- On-Road Service Life: 600,000 miles with a coolant extender as needed.
- Off-Road Applications 12,000 hours or 6 years whichever comes first.

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Specifications

Formulated to meet:

- **ASTM D3306**
- **ASTM D4985**
- **ASTM D6210**
- **TMC of ATA RP 329/330/338**

Industry Applications

Used to make antifreeze/coolant for:

- On-Road Heavy-Duty Diesel Trucks
- Off-road heavy-duty diesel-powered equipment
- Gas and Oil Field Industrial Coolant

Quality Control & Technical Support

WEBA's products must pass rigorous quality control tests. They are tested for conformance with product specifications and industry standards. Certificates of analysis are provided with every shipment. WEBA Technology can help with many technical questions relating to the finished fluids our additives create, types of glycol and other bases, and assist with issues on products containing our inhibitor packages.

WEBA TECHNOLOGY

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METALGUARD® A90

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Product Specifications

As concentrated inhibitor package:	
Visual	Clear to slightly cloudy, clear to amber liquid
Specific Gravity; 70ºF/21.1ºC	1.165-1.075
pH	9.2-10.0
As antifreeze concentrate, ethylene glycol base:	
Specific Gravity; 70ºF/21.1ºC	1.110-1.145
pH	8.0-9.0
Freeze Point; 50%	-34ºF (-36ºC) max.
Reserve Alkalinity	6.0 min.

Blending & Use Instructions

METALGUARD A90 should be blended with glycols meeting ASTM E1177 EG-1, EG-2, PG-1 or PG-2 requirements. Dilution water should be deionized or at least meet the limits given in Table X1.1 in the appendix of ASTM D6210 standard.

Blending: Upon opening the drum of additive, stir thoroughly. Do not use high speed agitation. If you use only a portion of the drum (i.e. a few gallons at a time) you need to mix the drum of additive prior to pulling out the required amount. If you use the entire drum to make a bulk blend you do not need to mix the drum prior to use.

To make antifreeze concentrate: First charge the desired quantity of glycol to the blending tank. Heat the glycol to 50ºF (10ºC) or higher. For reclaimed glycols adjust its pH range to a range of 7.0-9.0, as required. Maintain the minimum temperature throughout the blending procedure. Good agitation is vital to making a consistent and proper product; agitate for 30-60 minutes after the addition of the additive package.

Use Rate: Based on the quantity being manufactured, add 10.0% by volume

To make Premix: Option 1: dilute concentrate 50% by volume. Option 2: If you are making premix (ready-to-use) from scratch, the METALGUARD additive, antifoam, dye and bitterant are considered part of the water portion. The concentration (percentage) of water will need to be adjusted to achieve a proper freeze point as required by ASTM D3306.

Use Rate: Based on the quantity being manufactured, add 5.0% by volume

Antifoam: Add the appropriate amount of antifoam to allow your product to pass a foam test. Use 0.01% by volume or 0.5 gallon (1.90L) per 5000 gallons (18,925L) of antifreeze concentrate (0.25 gallons/0.95L in 50/50). More may be needed depending upon glycol-base quality. Antifoam may be purchased in 5-gallon (18.93L) pails from WEBA Technology.

Dye: As the last step add the color of dye that you wish to use. If you need help determining dye colors or use rates you may contact us.

Testing: Test your finished product to be sure it conforms to specifications. See below paragraph on quality control.

Storage: Store concentrated additive packages above 60ºF (15.5ºC). If a container arrives cold to your warehouse, immediately place it in a hot room for 1-2 days then stir thoroughly prior to use. Alternatively, heating blankets may be used (follow local regulations regarding their usage) Once a container is opened there is a possibility of the liquid phase evaporating, so close the container tightly after each use. High temperatures, above 100ºF (38ºC) for an extended duration, may also cause degradation of the inhibitors. If you are in an area of the country with continuous high heat, store the additive in a cooler area of your warehouse.

Water Quality And Dilution: When antifreeze concentrate is diluted with water, the water for dilution must be of acceptable quality. Deionized water is the best to use, but other sources of water are acceptable if they meet the water quality limits outlined in both ASTM D3306 and ASTM D6210.

Quality Control Procedures: WEBA strongly recommends that all antifreeze producers have an internal, complete quality control program in place for manufacturing and testing of all products made for sale. It is recommended that antifreeze/coolant be inspected at 90-day intervals to detect any obvious contamination, phase separation, cloudiness, precipitation or significant pH change. A full analysis of coolant is recommended at least every 300,000 miles, or when visual, pH checks or other monitored physical properties indicate a problem.

The specifications listed in this bulletin are based on products produced with WEBA's additive packages, virgin glycol and deionized water. To confirm that your finished products meet the required industry specifications, WEBA recommends that you test your glycol and finished products at an accredited laboratory. WEBA will warrant our additive packages only if this procedure and the recommended blending and storage procedures are properly followed and documented. In addition, the glycol or other base fluid used with our additive systems should meet industry or ASTM standards unless specifically exempted in our literature.